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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,883	12/20/2004	Wenlin Zhang	68.0327	5296

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Victor H Segura
Schlumberger Technology Corporation
200 Gillingham Lane
Sugar Land, TX 77478

EXAMINER	
WILKINS III, HARRY D	
ART UNIT	PAPER NUMBER
1795	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/518,883	ZHANG ET AL.	
	Examiner	Art Unit	
	Harry D. Wilkins, III	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Objection

1. The objection to claims 2 and 3 has been withdrawn in view of Applicant's corrective amendment of these claims.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1, and 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shishkin et al (US 4891115) in view of Estes et al (US 5299359).

As to claim 1, Shishkin et al discloses an apparatus for repairing pipelines and cleaning the inside of pipes from corrosive deposits (See abstract) comprising: a cleaning tool, 1, further comprising a hub, 3, carrying spring plates, 4, secured thereto, the free ends having blades the are engageable with the inner surface of the pipeline, 5 (See column 5, lines 9-29; See also figure 1); a plating apparatus (See Figures 12 and

13; See also col. 8 line 66 to col. 9, line 34 - the cleaning tool has a power source 45 and anode 46 for enabling plating of the interior of the pipe) for plating a new surface after the cleaning step (See column 9, lines 21-34 – a strong coating is formed after the corrosive deposit has been removed). However, Shishkin et al fails to disclose a corrosion monitoring tool to examine the interior surface of the pipe after the new surface has been coated.

Estes et al discloses an apparatus that measures corrosion inside pipelines (See column 1, lines 22-36) a caliper logging sonde, 10 (probe that monitors corrosion in pipelines) preferably includes a plurality of upper centering arms, 20, and a plurality of lower centering arms, 22, which are utilized to centralize caliper logging sonde, 10, within borehole, 12, in a manner well known in the art comprising a plurality of sensing fingers, 24, in order to detect ovalization and/or defects within the internal dimensions of tube 58 which is suspended within borehole, 12 (See columns 3-4, lines 48-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the corrosion monitoring tool/sonde in Estes et al in combination with the apparatus of Shishkin et al in order to determine if an adequate repair coating was formed by the apparatus of Shishkin et al. The monitoring tool would have detected if the repair coating formed as taught by Shishkin et al had proper shape (determining ovalness) and continuity (determining defects).

As to claim 4, Shishkin et al discloses a method for repairing pipelines and cleaning the inside of pipes from corrosive deposits (See abstract) comprising the steps of: cleaning an interior of a pipe via a cleaning tool, 1, further comprising a hub, 3,

carrying spring plates, 4, secured thereto, the free ends having blades the are engageable with the inner surface of the pipeline, 5 (See column 5, lines 9-29; See also figure 1); plating a new surface inside the pipe after the cleaning step via a plating apparatus (See Figures 12 and 13; See also col. 8, line 66 to col. 9, line 34- the cleaning tool has a power source 45 and anode 46 for enabling plating of the interior of the pipe) for plating a new surface after the cleaning step (See column 9, lines 21-34 – a strong coating is formed after the corrosive deposit has been removed). However, Shishkin et al fails to disclose a step of examining, by a corrosion monitoring tool to examine the interior surface of the pipe after the new surface has been coated.

Estes et al discloses a method that measures corrosion inside pipelines (See column 1, lines 22-36) via a caliper logging sonde, 10 (probe that monitors corrosion in pipelines) preferably includes a plurality of upper centering arms, 20, and a plurality of lower centering arms, 22, which are utilized to centralize caliper logging sonde, 10, within borehole, 12, in a manner well known in the art comprising a plurality of sensing fingers, 24, in order to detect ovalization and/or defects within the internal dimensions of tube 58 which is suspended within borehole, 12 (See columns 3-4, lines 48-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the examining method, via a corrosion monitoring tool/sonde in Estes et al in combination with the method of Shishkin et al in order to determine if an adequate repair coating was formed by the method of Shishkin et al. The monitoring tool would have detected if the repair coating formed as taught by

Shishkin et al had proper shape (determining ovalness) and continuity (determining defects).

As to claim 5, modified Shishkin et al discloses all of the claimed limitations as discussed with respect to claim 4 above, wherein Estes et al further discloses the monitoring tool/sonde, 10, to repeatedly measure variations in the internal dimension of borehole tubing at a plurality of time instants (See column 6, lines 49-63).

However, modified Shishkin et al still fails to disclose the cleaning step after the monitoring step.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement an examining step (a1) as suggested by Estes et al before a cleaning step (a2) to determine if the pipe needs to be cleaned/repaired at all.

As to claims 6 & 7, Shishkin et al discloses a power source, 45, with anode, 46, that provide an electrochemical (electrolytic) plating step by forcing the inhibitor into the layer of deposits (See column 4, lines 12-20; See also figure 12; See also columns 8-9, lines 65-20).

As to claim 8, Shishkin et al discloses fluid jets on the cleaning tool so as to effect partial breakage (blasting) and removal of deposits from the inner surfaces of the pipeline (See column 6, lines 44-62). However, modified Shishkin et al fails to disclose a container to collect removed corroded areas.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a container to collect corroded areas after fluid jets blast the deposits in order for deposits not to re-deposit on the walls of the tube.

As to claim 9, modified Shishkin et al discloses all of the claimed limitations as discussed with respect to claim 5 above, wherein Estes et al disclose the examining steps wherein a sensing finger, 28 (Same sensing figures of claim 4, but different figure) is preferably mounted to caliper logging sonde, 10, in a manner such that sensing finger, 28, may be moved with respect to caliper logging sonde, 10, in response to variations in the internal dimensions of tube, 58, thus resulting in a longitudinal movement of sliding block 30 (See figure 2; See also columns 3-4, lines 64-12). However, modified Shishkin et al fails to disclose the generating of an electrical signal in response to the flexing step representative of said corroded area.

Estes et al discloses that the longitudinal movement will be achieved by the transmission rod, 32, which is then utilized to urge transducer rod, 36, into an out of internal chamber, 56, of thimble member, wherein the effective inductance of the coil, 46, is altered, resulting in an electrical signal which varies in response to variations in the internal dimension of tube, 58, at each of a plurality of points around the circumference of caliper logging sonde, 10 (see column 4, lines 33-45) in order to detect ovalization and/or defects within the internal dimensions of tube 58 which is suspended within borehole, 12 (See columns 3-4, lines 48-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement generate an electrical signal in response to the flexing step in Estes et al in the apparatus of modified Shishkin et al in order to detect ovalization and/or defects within the internal dimensions of tube 58 which is suspended within borehole, 12.

5. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shishkin et al (US 4891115) in view of Estes et al (US 5299359) as applied to claim 1 above and further in view of Copland et al (US 4673890).

As to claim 2 and 3, modified Shishkin et al discloses all of the claimed limitations as discussed with respect to claim 1 above, wherein Shishkin et al yet fails to disclose a sealing apparatus to separate the different components of the pipe repair apparatus.

Copland et al discloses well bores (Shishkin et al discloses pipelines used in oil wells) comprising lower, 6, and upper, 8, packer sections in a bore (See figure 1; See also column 5, lines 1-10) in order to provide lockable packers so fluid is not transmitted from one compartment to another compartment (See column 5, lines 12-39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the upper and lower packers in Copland et al in the apparatus of modified Shishkin et al in order to provide lo lockable packers so fluid is not transmitted from one compartment to another compartment.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shishkin et al (US 4891115) in view of Estes et al (US 5299359) as applied to claim 5 above and further in view of Hoyle et al (US 5036945).

As to claim 10, modified Shishkin et al discloses all of the claimed limitations as discussed with respect to claim 5 above, wherein Shishkin et al further discloses a method for cleaning the inner surface of a pipeline for oil/gas wells (See column 9, lines 18-23)

Hoyle et al discloses an apparatus tool for use in boreholes of oil wells (See column 1, lines 10-15) wherein a dipole transmitter, a1, transmits a dipole shear wave into the formation of the borehole, wherein the hydrophone array senses the existence of dipole shear waves, and generates output signals (the output signals are a recording of the shear waves) in order to energize the inputs of the switching network to select a monopole output when the monopole transmitter, a2, is used, and to select a dipole output when the dipole transmitter, a1, is used (modified Shishkin et al desires the most efficient output so that the fingers may relay accurate information for cleaning) (See columns 12-13, lines 40-3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the shear wave propagation in Hoyle et al in the method of modified Shishkin et al in order to energize the inputs of the switching network to select a monopole output when the monopole transmitter, a2, is used, and to select a dipole output when the dipole transmitter, a1, is used.

Response to Arguments

7. Applicant's arguments filed 7 March 2008 have been fully considered but they are not persuasive. Applicant has argued that:

a. Shishkin is concerned with a wholly different type of cleaning and repair apparatus than the present invention.

In response, any such difference that may exist in the type of cleaning and repair is not included in any claims. Further, the monitoring tool of claim 1 and the monitoring

step of claim 4 occur after the repair plating tool/step has occurred, thereby not requiring any monitoring prior to cleaning.

b. Estes fails to disclose an in situ repair apparatus.

In response, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

c. The replacement of corroded pipe in Estes is different from the repair of corroded pipe in Shishkin.

In response, the examiner agrees. However, keeping in mind the level of knowledge of one of ordinary skill in the art, that ordinarily skilled person would have been motivated to have added the corrosion monitoring device of Estes to the pipe repair system of Shishkin for the purpose of ensuring that the repair job done by the repair system was adequate.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harry D Wilkins, III/
Primary Examiner, Art Unit 1795

hdw